Distributed Resources: Information for Business Strategies - Target 34

Contract #: 500-00-023 **Project #:** 10 - 14
Contractor: Electric Power Research Institute (EPRI)
Subcontractors: Arthur D. Little, Inc.: EPRIsolutions: Resource Dynamics Corporation
Project Amount: $271,524
Contractor Project Manager: Dan Rastler (650) 855-2521
Commission Contract Manager: Jairam Gopal (916) 654-4880
Status: Completed

Project Description:
The purpose of this project is to provide the Commission with information and tools to enable California ratepayers and energy providers to realize the full potential of distributed resources (DR)-based business strategies. EPRI involvement in DR research provides the unique access and intelligence necessary to identify new markets niches, improve the use of generation and T&D assets, and evaluate DR-based solutions for commercial and industrial ratepayers and business opportunities for energy providers. The target focuses on creating integrated, dependable, packaged solutions and providing information to better understand the DR market, both locally and globally. This EPRI target provides information to support the planning and deployment of DR projects, analyze DR for retail business applications, understand the impacts of DR on utility distribution systems, and evaluate the integration, management, and control of DR technologies.

This project supports the PIER Program objectives of:

- Improving the reliability/quality of California's electricity by developing generation options that energy providers can utilize to provide unique solutions for peaking power issues, to enhance system reliability (system voltage control), and to assure power quality to their customers.
- Improving the energy cost/value of California's electricity by assisting in the development of innovative distributed resource technologies that can potentially provide lower delivered cost electricity than central station power.
- Improving the environmental and public health costs/risks of California's electricity by assisting in developing fuel cell systems and other environmentally preferred generation technologies to replace traditional central station power.

Proposed Outcomes:

1. Provide strategic information on the DR business environment, trends, technologies, customers, and markets.
2. Compile detailed information to allow analysis of DR for retail business applications.
3. Provide information to assist distribution planners in integrating DR in utility electric distribution systems.
4. Supply information, methodology, and tools to support analysis of DR impacts on electric distribution systems.
5. Conduct market research and provide information on DR markets.
6. Conduct a Tailored Collaboration entitled "Tests and Evaluation of Four Newly Commercialized Distributed Generators in San Diego, CA."
7. Conduct a Tailored Collaboration entitled "Distributed Energy Resources Public Web."

Actual Outcomes:

1. Strategic Information.
   - A quarterly newsletter—Strategic Intelligence Update: DR Business Developments—was published on DR applications, business developments, partnerships, demonstrations, regulatory policy, and electrical interconnection and integration research.
   - An online version of EPRI Distributed Resources Technical Assessment Guide (DR-TAG) was made available. The web-based Guide includes information on product configurations, technology status, development issues, and prospects for future improvements.
   - Educational tech briefs were published on key DR topics.
   - The 2nd Annual Business Venture Forum, an annual national workshop, was held July 25-26 in San Francisco. It provided a forum for utilities, energy companies, equipment manufacturers, and vendors to discuss the latest technology, market, and policy developments.
   - Advisory Group Meetings were held in February, July, and October.
2. Retail Business Strategies.
   - A report—Managing Price Risk with Distributed Resources (1003972)—was published on the potential value of DR as a hedging device for end-use customers.
   - A report—Framework for Evaluating DR Business Cases (1003971)—was published on a decision-making framework for analyzing DR-based business opportunities in the context of a retail portfolio, or as a business unit targeting a defined set of customers with identified needs.
3. Integration of DR in Distribution Systems.
   - A report—Technical Assessment and Evaluation of DR Micro-Grids (1003973)—was published on the technical and economic feasibility of designing and operating micro-grids.
   - A software tool—Distributed Resources Integration Assistant: Version 1.0 (1006540)—was developed to provide useful engineering information, calculators, and screening tools to assist those involved with properly integrating DR into the electric power system.
4. DR Impacts on Distribution Systems.
   - A report—DR Cost Impacts on Transmission and Distribution Systems (1003975)—was published to assess the economic pros and cons of employing DR technologies when T&D system upgrades are needed.
   - A report—Siting of DR Units: Process and Issues (1003974)—was published on the issues and principles involved in the DR siting process and outlines how most tasks can be conducted.
5. Market Research.
   - A report—Market Research in Residential DR Technologies (1003976)—was published on results of primary research into issues facing DR in residential markets with a special emphasis on California markets as leaders in accommodating their behaviors to volatile energy markets.
   - A report—DR Adoption Experience in the Commercial Sector (1003977)—was published on commercial businesses' experience in using DR technologies and the extent to which these technologies met the economic and operations experience of these early adopters.
6. Tailored Collaboration—Evaluation of Five Distributed Generators.
   - A demonstration project was conducted, siting new DER products at end-user facilities with the purpose of collecting end-user experiences and better understanding the steps required to site DER devices. A full complement of performance, emission, power quality, and noise tests were also conducted. The final report is due in January 2002.
7. Tailored Collaboration—DER Public Web.
   - A website containing nearly all the information generated by the EPRI DR targets in the last three years was made available in a well-organized, easy-to-use structure.

Project Status:
The project has been completed.